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**Maintenance**

**AEROSPACE FABRICATION MAINTENANCE**

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This publication implements policy guidance in Air Force Policy Directive (AFPD) 21-1, *Managing Aerospace Equipment Maintenance*, and Air Force Instruction (AFI) 21-105, *Aerospace Equipment Structural Maintenance*, and AFI 21-124, *Air Force Oil Analysis Program (OAP)*. This instruction provides guidance and direction necessary to develop an effective Aircraft Metals Technology Program, Nondestructive Inspection Program, Aircraft Structural Maintenance Program, and Survival Equipment Program. PACAF tenant units shall comply with areas of this instruction that apply to their operation. Send comments and suggested improvements to this publication on AF Form 847, Recommendation for Change of Publication, through channels to HQ PACAF/LGMFB, 25 E Street, Suite I-308, Hickam AFB, HI 96853-5427. All PACAF Maintenance Squadrons (MXS) and Equipment Maintenance Squadrons (EMS) with Fabrication flights or any of the sections in this instruction manual shall maintain a current copy of this instruction. Contractor operations are not expected to fully comply with the paragraphs of this instruction concerning organizational structure and responsibilities. Instead, they will comply with the provisions of the contract statement of work (SOW). It is the contracting office's responsibility to ensure the intent of this publication is incorporated into such work statements upon revision or renewal. Contractors will, however, comply with all other requirements of this publication concerning inspection, corrosion treatment, painting, marking, and documentation procedures on assigned aerospace equipment. Maintain and dispose of records created as a result of processes prescribed in this publication in accordance with AFMAN 37-139, Records Disposition Schedule. This instruction does not apply to Air National Guard (ANG) or Air Force Reserve Command (AFRC) units and members.

**SUMMARY OF REVISIONS**

**This document is substantially revised and must be completely reviewed.**

This instruction incorporates procedures formerly published in AFI 21-105/PACAFSUP1.

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## Chapter 1

### AIRCRAFT METALS TECHNOLOGY PROGRAM

#### 1.1. Purpose of Aircraft Metals Technology (AFSC 2A7X1).

1.1.1. Supports aircraft maintenance and aircraft support equipment maintenance through the manufacture and repair of aircraft components/parts and support equipment parts. Manufactures, reworks, welds, cuts, brazes, forges, solders, and assembles metals and machined parts in the fabrication of metal parts and components. Aircraft Metals Technology personnel inspect aircraft parts for wear using calipers, gauges and micrometers. Fabricate aircraft parts, tools, fixtures and miscellaneous items utilizing blueprints. The manufacturing and repairing is accomplished by forming raw stock using milling machines, lathes, tool and cutter grinder, drill presses, surface grinders, radial arm drill presses and various pneumatic hand tools. In addition to these processes, parts are manufactured and repaired using heat treatment along with fusion welding using tungsten inert gas, metallic inert gas, shield arc, oxy/acetylene and plasma arc cutting. Maintains shop equipment by performing preventative maintenance and other required maintenance on shop equipment.

#### 1.2. HQ PACAF/LGM Responsibilities.

1.2.1. Manages the command Aircraft Metals Technology Program.

1.2.2. Designates a senior NCO to manage the program and perform the following responsibilities:

1.2.2.1. Manages the Aircraft Metals Technology career field for PACAF.

1.2.2.2. Manages the PACAF welder certification program.

1.2.2.3. Approves all intra-command Aircraft Metals Technology TDY manning assistance requests.

1.2.2.4. Develops and coordinates PACAF policy and procedures for Aircraft Metals Technology functions.

1.2.2.5. Coordinates all intra-command Aircraft Metals Technology temporary and permanent equipment transfers.

1.2.2.6. Supports the Aircraft Metals Technology career field by participating in Metals Technology managers meetings/working groups, advisory board meetings, and UT&Ws.

#### 1.3. Maintenance Squadron Commander Responsibilities.

1.3.1. Ensures funding is available for Aircraft Metals Technology personnel to be certified at an Air Logistics Center (ALC) or locally. This includes funding for all pre-certification training supplies and certification materials.

#### 1.4. Fabrication Flight Chief Responsibilities.

1.4.1. Determines if welders should be certified by an ALC or locally and ensures funding is forecasted.

1.4.2. Ensures all assigned journeyman, craftsman, and civilians assigned to the Aircraft Metals Technology Section are certified IAW TO 00-25-252 to perform welding operations in each metal group required for assigned airframe as listed in paragraph 1.4.2.1. at a minimum.

1.4.2.1. Airframe – Required Certification Groups:

A-10 - 2,3,4,6

C-9 – 2,3,4,6

C-12 – 2,3,4,6

C-130 – 2,3,4,6,7

C-21 – 2,3,4,6

E-3 – 2,3,4,6

F-15 – 2,3,4,6

F-16 – 2,3,4,6,7

UH-1 – 2,3,4,6

HH-60 – 2,3,4,6

KC/C-135 – 2,3,4,6

1.4.3. Ensures Metals Technology personnel are not assigned projects or other local manufacture jobs that interfere with their primary duties.

## **1.5. Aircraft Metals Technology Section Chief Responsibilities.**

1.5.1. Maintains certification for all assigned 5- and 7-skill level Metals Technology personnel, including civilian technicians who are assigned shop production duties.

1.5.2. Coordinates certification requirements with the ALC or NDI Section to ensure the capability exist.

1.5.3. Ensures personnel are properly trained on manually controlled machines prior to being trained on Computer Numerically Controlled (CNC) machines.

## Chapter 2

### NONDESTRUCTIVE INSPECTION PROGRAM

#### 2.1. Purpose of Nondestructive Inspection (NDI) and Oil Analysis Program (OAP) (AFSC 2A7X2).

2.1.1. NDI is a group of inspection methods used to investigate the quality, integrity, properties and dimensions of materials and components without damaging or impairing their serviceability. These inspection methods primarily are liquid fluorescent penetrant, magnetic particle, eddy current, ultra-sonic and radiographic. NDI extends the life of aircraft, engines and related support equipment by detecting defects, i.e., cracks, voids, delaminations and foreign objects. Interpreting oil analysis results. The engine condition is assessed based on the diagnosis of the probable source of the wear metal.

2.1.2. The OAP Laboratory will inform the user of the analysis results, but will not make maintenance recommendations unless specifically called for by technical orders. When used properly, the OAP is an essential part of aircraft maintenance because it helps determine the condition of aircraft engines.

2.1.3. The SEM/EDX is used for management of the aircraft engine Magnetic Chip Detector Debris Program (MCDP) for all assigned and transient F-16 aircraft with the F-110-GE-129 or F-110-GE-100 engine and U-2 aircraft with the GE F-118-101 engine. The NDI lab will inform the user of the analysis results, but will not make maintenance recommendations unless specifically called for by technical orders. When used properly, the MCDP is an essential part of aircraft maintenance because it helps determine the condition of aircraft engines.

#### 2.2. HQ PACAF/LGM Responsibilities.

2.2.1. Manages the command NDI and Oil Analysis Program.

2.2.2. Designates a senior NCO to manage the program and perform the following responsibilities:

2.2.2.1. Manages the NDI career field for PACAF.

2.2.2.2. Supports the Air Force NDI Program Office by participating in NDI equipment evaluations, field surveys, NDI Executive Working Group, NDI Product Improvement Teams (PIT), Air Force NDI managers meetings/working groups, advisory board meetings, and UTAWs.

2.2.2.3. Approves all intra-command NDI TDY manning assistance requests.

2.2.2.4. Develops and coordinates PACAF policy and procedures for NDI, OAP, and SEM/EDX functions.

2.2.2.5. Coordinates all intra-command NDI temporary and permanent equipment transfers.

#### 2.3. Wing Commanders Responsibilities.

2.3.1. Ensures an effective NDI and Oil Analysis Program is maintained.

#### 2.4. Maintenance Squadron Commander Responsibilities.

2.4.1. Ensures only properly trained personnel with AFSC 2A7X2 operate NDI equipment and perform NDI.

2.4.2. Ensures NDI personnel do not perform visual inspections unless specifically called for by technical orders.

## **2.5. NDI Section Chief Responsibilities.**

2.5.1. Organizes, directs, and manages the Wing NDI Program IAW TO 33B-1-1 and other applicable directives.

2.5.2. Ensures all required NDI equipment is available and operational to support assigned weapon systems and support equipment.

2.5.3. Ensures environmental controls are met IAW T.O.s 33-1-37-2 and 33B-1-1.

2.5.4. Ensures NDI personnel do not make serviceability determinations of materials and components except when directed to do so by specific directives. NDI Technicians will not perform ordinary visual inspections that other maintenance personnel can do except when directed to do so by specific directives.

2.5.5. Ensures all Radiographic Safety Precautions are taken prior to performing radiographic operations. NDI personnel must have completed the NDI basic technical course or equivalent (see T.O. 33B-1-1, paragraph 5-515). Additionally, personnel will be certified by the bioenvironmental engineering office (BEE) as having demonstrated a satisfactory knowledge of as low as reasonably achievable (ALARA) radiation safety training. This certification will be maintained within the duty section and documented on AF Form 55 annually.

2.5.6. Ensures radiographic film is marked as specified in the publication directing the inspection (i.e. -36). Where guidance does not exist, lead letters and numerals (or lead tape) will be used depicting the following: serial number, date of inspection, and exposure number.

2.5.7. Ensures exposures made on transient aircraft are sent to the parent organization's NDI laboratory and indicate results/actions taken. When an aircraft is transferred, ensure all its radiographs are packaged, marked, and sent to the gaining organization.

2.5.8. Ensure process controls and documentation are accomplished on all inspection methods and equipment IAW T.O. 33B-1-1, chapter 1, section IV and specific inspection technical data.

2.5.9. Submit product quality deficiency reports (PQDR) IAW T.O. 00-35D-54. Ensure SA-ALC/LDN, SA-ALC/LDEAA, and Wright Laboratory are addressed on all NDI equipment.

2.5.10. Ensures accurate oil analysis data is distributed to the central Air Force database monthly.

2.5.10.1. NDI labs will keep monthly oil analysis data on file for 12 months.

2.5.11. Ensures all deployable spectrometers are properly secured and protected before being deployed out of the OAP Laboratory.

2.5.12. Performs and documents daily standardization checks IAW applicable technical data on all assigned spectrometers every duty day except three duty days prior to deployments for that specific spectrometer deploying and three duty days after receipt of the spectrometer returning from a deployment.

2.5.13. Ensures all assigned spectrometers are left in standby mode when not being used except when unit is being prepared for deployment or other required movement outside the NDI/OAP facility and during transportation to new location.

2.5.14. Ensures correlation samples are analyzed IAW T.O. 00-5-1 and the procedure instruction card provided by JOAP-TSC.

2.5.15. Ensures all assigned oil analysis spectrometers are Joint Oil Analysis Program (JOAP) approved and certified IAW TO 33-1-37-1.

2.5.16. Requests contractor repair through the Air Force Oil Analysis Program Office whenever an oil analysis spectrometer cannot be repaired locally or is out of service due to maintenance for more than 24 hours.

2.5.17. Complies with contingency operations in TO 33-1-37-2 when no back up oil analysis spectrometer is available locally.

2.5.18. Ensures all assigned personnel maintain proficiency in NDI methods and procedures through practical demonstration and documented in AF Form 623 or CAMS. The supervisor must also develop and maintain current radiological safety operating and emergency procedures approved by the BEE. These procedures will be included in the laboratory job safety standard and reviewed annually during the annual hygiene survey.

2.5.19. Ensures HQ PACAF/LGMFB and HQ PACAF/LGMFE are notified by telephone or email when SEM/EDX level three support is required.

## Chapter 3

### AIRCRAFT STRUCTURAL MAINTENANCE AND CORROSION CONTROL PROGRAM

#### 3.1. Purpose of Aircraft Structural Maintenance (ASM) (AFSC 2A7X3).

3.1.1. Aircraft Structural Maintenance incorporates design, repair and fabrication of metal, fiberglass, plastic and composite structures for aircraft. Corrosion identification, prevention and treatment procedures as well as removal and application of Radar Absorbing Material (RAM) are also integral components of ASM. All aspects of ASM are geared towards maintaining the structural integrity and Low Observable systems at the organizational and intermediate levels.

3.1.2. Corrosion control programs shall be oriented towards the prevention and control of corrosion through frequent cleaning, corrosion inspection and early detection, application of proper treatment materials/procedures, and maintenance painting. Frequent cleaning has proven to be the most effective means of preventing corrosion. Maintenance painting is defined for field purposes as spot painting, sectionalized painting, and complete scuff sand and overcoat.

3.1.3. All aircraft, ground and support equipment users and maintainers must attend periodic corrosion prevention and identification training as defined in section 3.14 of this instruction; structural personnel are exempt from this requirement. Awareness is the key to an effective corrosion management program.

3.1.4. It is not economically feasible to remove corrosion from common hardware (screws, nuts, etc.); therefore, the user/operator is responsible for replacing corroded hardware as necessary in accordance with applicable technical data.

#### 3.2. HQ PACAF/CC Responsibilities.

3.2.1. Approving official for all PACAF paint/marketing schemes and waivers.

#### 3.3. HQ PACAF/LGM Responsibilities.

3.3.1. Manages the command's Aircraft Structural Maintenance (ASM) and Corrosion Control program.

3.3.2. Designates a senior NCO to manage the program and perform the following responsibilities:

3.3.2.1. Manages the Aircraft Structural Maintenance career field for PACAF.

3.3.2.2. Represent PACAF at assigned weapon systems corrosion prevention advisory boards (CPAB), AF/DOD corrosion conferences, Advance Composite conferences, field surveys, and UT&Ws.

3.3.2.3. Approves all intra-command Aircraft Structural Maintenance TDY manning assistance requests.

3.3.2.4. Develops and coordinates PACAF policy and procedures for ASM functions.

3.3.2.5. Coordinates all intra-command Aircraft Structural Repair temporary and permanent equipment transfers.

### **3.4. Wing Commander Responsibilities.**

- 3.4.1. Approves all aircraft paint waiver requests before submittal to NAF and HQ PACAF.
- 3.4.2. Designates the Aircraft Maintenance Squadron (AMS) as the organization responsible for managing aircraft washes.
- 3.4.3. Ensures funding is budgeted for, and preserved exclusively for corrosion control operations on all assets (aircraft, AGE, tanks, pods, AME, etc.).
- 3.4.4. Ensures no unauthorized markings/decals are applied to assigned aircraft.
- 3.4.5. Ensures that the unit silhouette placed on the vertical stabilizer is moderate in nature, enhances unit pride, be gender neutral, symbolic and designed in good taste.

### **3.5. Operations Group Commander Responsibilities.**

- 3.5.1. Shares collateral responsibility with MXG/CC for maintaining an effective corrosion prevention and control program for assigned aircraft.

### **3.6. Maintenance Group Commander Responsibilities.**

- 3.6.1. Establishes and maintains an effective corrosion prevention and control program.
- 3.6.2. Appoints the wing corrosion manager in writing.
- 3.6.3. Ensures adequate facilities, equipment, manpower, material and funding are available to support a sound corrosion prevention and control program. The minimum requirements are:
  - 3.6.3.1. Provides a facility for maintenance painting assigned aircraft on a year round basis.
  - 3.6.3.2. Ensures requirements outlined in AFI 32-1024 Standard Facility Requirements are met for support equipment (SE) and aircraft small parts. This capability can be incorporated in the aircraft corrosion control facility if space permits.
  - 3.6.3.3. Ensures ASM facilities meet local, state and federal Environmental Protection Agency requirements in conjunction with current National Emission Standards for Hazardous Air Pollutants (NESHAP).
- 3.6.4. Ensures adequate wash rack facilities are available to wash aircraft on a year round basis. This requirement can be satisfied with any one or more of the following:
  - 3.6.4.1. A specially designed corrosion control facility completely enclosed, heated with environmentally controlled ventilation and waste disposal systems, and equipped with all utilities necessary for accomplishing all facets of aircraft corrosion control.
  - 3.6.4.2. An environmentally compliant enclosed or covered wash rack.
  - 3.6.4.3. An outside wash rack may be used on an interim basis when weather conditions permit and when approved by Base Civil Engineer.
- 3.6.5. Appoints an aircraft wash rack facility manager to ensure proper cleaning materials, equipment, and supplies are being used and maintained in accordance with applicable technical orders. The wash rack facility manager will: replenish consumables as required by coordinating with the wash supervisor, verify facility condition, and coordinate any corrosion control related facility upgrades or modifications.

3.6.6. Ensures Quality Assurance is adequately evaluating corrosion programs through inspection and maintenance follow-up evaluations.

3.6.6.1. Ensures Quality Assurance is evaluating a minimum of 10% of all aircraft post washes

### **3.7. Maintenance Operations Officer Responsibilities.**

3.7.1. Ensures frequency-of-cleaning/wash cycles are established for assigned aircraft to maximize corrosion prevention that will not exceed the maximum wash interval listed in TO 1-1-691. Monitors aircraft wash schedules to eliminate overdue washes.

3.7.2. Appoints an experienced/qualified wash crew supervisor, 5-level or above. The wash crew supervisor will be trained on QPL items by a 2A773 and training documented in the wash crew supervisor's training record. Units that have a 2A7X3 as the wash crew supervisor are exempt from this requirement.

3.7.3. Provides a task trained and qualified aircraft wash crew, to include as a minimum, a dedicated crew chief and/or assistant dedicated crew chief and ensures availability of personal protective equipment within the workcenter. Units with established contracted wash teams are exempt from this requirement.

3.7.4. Ensures operations squadron Plans, Scheduling & Documentation sections schedule aircraft washes through Core Automated Maintenance System (CAMS).

3.7.5. Notify HQ PACAF fabrication functional manager and appropriate HQ PACAF airframe functional manager of any aircraft wash overdue more than 15 days by email. Include reason for overdue, expected wash date, and corrective action taken to prevent further occurrences if applicable.

3.7.5.1. Insure overdue wash write-up is entered into the aircraft's 781's.

### **3.8. Fabrication Flight Chief Responsibilities:**

3.8.1. Recommend a wing corrosion manager to the MXG/CC. The corrosion manager must be appointed by the MXG/CC in writing. A copy of the appointment memo will be sent to HQ PACAF/LGMFB, 25 E Street Suite I-308, Hickam AFB, HI 96853-5247, within 30 days of the appointment.

3.8.2. The wing corrosion manager will be a 2A773, 2A790, or 2A600 experienced in corrosion prevention and repair.

3.8.3. Ensures Structural Maintenance personnel are not assigned projects or other local manufacture jobs that interfere with their primary duties.

### **3.9. Aircraft Structural Maintenance (ASM) Section Chief or Wing Corrosion Program Manager's Responsibilities.**

3.9.1. Ensures corrosion inspections are accomplished during each phase, periodic, isochronal, and acceptance inspection for aircraft and equipment assigned.

3.9.2. Ensures corrosion prevention and treatment procedures are performed within technical order requirements.

3.9.2.1. Ensures all inspection work cards contain adequate corrosion inspection requirements and if not provided by the item/system manager they are developed locally.

- 3.9.3. Ensures only authorized chemical cleaning materials and corrosion removal methods are used and that Material Safety Data Sheets are available for each chemical used.
- 3.9.4. Ensures no other maintenance is accomplished on the aircraft or equipment during corrosion prevention treatment when hazardous/toxic materials are in use, which requires the use of, specialized personal protective equipment. In the event specialized respiratory protection equipment is required, personnel will be properly fitted for the equipment and trained in its use IAW AFOSH Std 48-1, Respiratory Protection Program.
- 3.9.5. Provides Environmental, Occupational Safety, Fire Prevention, Health and Hazard Communication training to all personnel as required by AFI 91-301 and AFOSH Std 161-21. Also, ensures that required training is documented on AFTO Form 55 and in CAMS if applicable.
- 3.9.6. Ensures Bioenvironmental services conduct initial baseline comprehensive evaluations and provide annual follow-ups to determine adequacy of work center controls for occupational hazards. Briefs all structural personnel and maintains records of this survey in the work center.
- 3.9.7. Ensures funding is forecasted and allocated to attend and participate in applicable Corrosion Prevention Advisory Boards (CPABs) and other corrosion/structural related programs/meetings.
- 3.9.8. Submits CPAB agenda items to HQ PACAF fabrication functional manager.
- 3.9.9. Ensures funding is allocated for required equipment for an efficient and effective corrosion prevention and control program.
- 3.9.10. Trains Aircraft Maintenance squadrons' wash rack supervisor(s) or contract wash crews in all aspects of aircraft wash and operation of all required wash and safety equipment and develops local checklists.
- 3.9.11. Coordinates with the wash rack supervisor(s) and the AGE Flight Chief to ensure only approved cleaning compounds are being used on aircraft and AGE.
- 3.9.12. Requests depot assistance IAW TO 00-25-107 through the PACAF weapon system manager when corrosion treatment/repairs are beyond the unit's capability.
- 3.9.13. Reports corrosion program deficiencies through proper channels, as required.
- 3.9.14. Serves as the Aircraft Structural Maintenance technical assistant to the Group Commanders and PACAF Aircraft Structural Maintenance Manager.
- 3.9.15. Ensures the required number and size of fire extinguishers are available and serviceable.
- 3.9.16. Ensures grounding points are inspected and approved IAW TO 00-25-172.
- 3.9.17. Reviews training and familiarization courses conducted by the unit and/or local field training detachments as required in para.3.15.
- 3.9.18. Enforces the use of approved coating materials and cleaning compounds as determined by SA-ALC/SFTT for cleaning compounds and Air Force Research Laboratory (AFRL/MLSA) for coating materials.
- 3.9.19. Ensure non-critical corrosion tasking (painting FOD cans, desks, tool boxes etc.) are kept to an absolute minimum.

3.9.20. Coordinate with base contracting to develop Statement of Work, draft contract modifications and evaluate potential contractors for the purpose for an Aircraft Cleaning Corrosion Prevention contract.

3.9.21. Submit competent individuals for Wash Contract Quality Assurance Evaluators (QAE) to the Functional Commander and Contracting.

### **3.10. Wash Rack Facility Manager Responsibilities.**

3.10.1. Ensures fall protection lifeline cables are installed when required and properly maintained IAW AFOSH Stds 91-66, 91-31, 91-32, and 91-100.

3.10.2. Ensures at least two approved cleaners are available IAW TO 1-1-691 and properly used, to include proper mix ratio and the correct cleaner for each area cleaned.

### **3.11. Wash Rack Supervisor Responsibilities.**

3.11.1. Manage the wash program.

3.11.2. Coordinate with the squadron and wing schedulers by attending the shared resource meeting, ensuring proper utilization of the aircraft wash facility.

3.11.3. Provides daily safety briefings explaining hazards associated with wash rack operations.

3.11.4. Ensures aircraft wash crews are task trained and qualified.

3.11.5. Ensures proper safety equipment, personal protective equipment and cleaning materials are serviceable and properly used IAW AFOSH Stds 91-66, 91-31, 91-32 and 91-100.

3.11.6. Ensures that fall protection is serviceable, and used when required (Reference AFOSH Stds 91-31 and 91-100).

3.11.7. Enters the requirement for wash, performs cleanliness inspection, signs the wash completion and enters the lubrication requirement in the AFTO Form 781A, Maintenance Discrepancy and Work Document.

3.11.8. Ensures the required number and size of fire extinguishers are available and serviceable.

3.11.9. Ensures aircraft are properly grounded IAW TO 00-25-172.

3.11.10. Inspects all wash rack equipment for serviceability, i.e., water hoses, pumps, air hoses, powered wash equipment, support equipment, etc prior to use.

3.11.11. Ensures wash rack facility and surrounding area is clean before and after use.

3.11.12. Maintain wash rack CTKs.

3.11.13. Coordinate with the wash facility manager for consumable re-supply, identify and call in routine facility work orders.

### **3.12. Quality Assurance Responsibilities**

3.12.1. Frequently spot-check aircraft for cleanliness and lubrication after wash.

3.12.2. Monitors the use of approved coating materials and cleaning compounds as determined by SA-ALC/SFTT for cleaning compounds and AFRL/MLSA for coating materials.

3.12.3. Adequately evaluate at least 10% of wash rack operations through over-the-shoulder inspections and maintenance follow-up evaluations.

3.12.4. QA must follow contract guidelines when aircraft washes are performed by contractors.

### **3.13. Aerospace Ground Equipment (AGE) Flight Chief Responsibilities.**

3.13.1. Ensure an effective corrosion control program is established and enforced for all assigned AGE. The corrosion program will include regularly scheduled washing, corrosion inspection, treatment, and painting as follows:

3.13.1.1. Washing and cleaning are the primary methods of corrosion prevention. The required AGE wash cycles are established based on location as determined in Technical Orders (T.O.) 1-1-691 and

35-1-3. The AGE flight chief will enforce the use of approved cleaning compounds specified in the Quality Products List (QPL).

3.13.1.2. Corrosion prevention and treatment (cleaning and corrosion removal) will be performed by the AGE flight to the maximum extent authorized. In addition to scheduled AGE washes, the AGE flight chief will ensure assigned AGE is cleaned, inspected, and touched up as necessary during each periodic inspection. Corrosion prevention and treatment beyond AGE flight capability and authorization will be scheduled into the appropriate fabrication flight or contractor's work area for treatment/repairs.

3.13.1.3. Establish a program to cycle AGE through the Corrosion element at least every two (2) years for inspection. This program will require 5-skill level or above ASM specialists (or equivalent contract personnel) to thoroughly inspect each piece of AGE for corrosion and determine if corrosion related repairs are needed and if the coating system should be replaced. The AGE Flight will develop and coordinate an AGE corrosion inspection schedule based on the Corrosion elements workload capability. Coordination between the AGE flight and the Corrosion element is critical to insure all assigned AGE is inspected at least bi-annually. CAMS will be used to schedule and document AGE painting.

3.13.1.4. The AGE flight chief will ensure programs are established to repair nicks, scrapes, or other minor damage to AGE coatings. Polyurethane paint will not be applied over lacquer or enamel coatings without complete removal of the lacquer or enamel coating system prior to the application of the new polyurethane coating. AGE is to be properly prepared IAW T.O. 35-1-3 before applying polyurethane coatings. Personnel applying polyurethane coatings will be properly trained, and will adhere to all technical and safety directives.

3.13.2. Ensures AGE reflectorization requirements are IAW T.O. 35-1-3.

3.13.3. Ensures CAMS is used to schedule and document AGE painting.

3.13.4. Ensures maintenance, servicing and inspection activity personnel are oriented to corrosion prevention and control.

3.13.5. Ensures powered and non-powered AGE is cleaned, thoroughly inspected, and touched-up as necessary during each periodic inspection.

3.13.6. Enforces the use of approved cleaning compounds.

3.13.7. Schedules work beyond AGE work center capability into the appropriate fabrication work-center or civilian contractor's work area for repairs/repaint.

### **3.14. Training and Familiarization Requirements:**

3.14.1. All aircraft and AGE maintenance personnel will receive corrosion prevention/control training upon initial assignment and at least annually thereafter. Aircraft Structural Maintenance personnel (AFSC 2A7X3) are exempt from this training.

3.14.2. Each unit will develop and implement a corrosion prevention/control training program.

3.14.2.1. Training curriculum will include:

3.14.2.2. Familiarization of corrosion types, identification procedures, techniques, and preventive measures.

3.14.2.3. Familiarization of aircraft/equipment corrosion prone areas.

3.14.2.4. Reporting and documentation procedures.

3.14.3. Courses will be tailored to meet local needs, and should be applied to specific AFSC requirements, as well as general information. Use of 2A7X3 personnel to assist in instruction or training is encouraged. A training course code will be established and training will be documented in CAMS.

3.14.4. Ensures ASM trainee's are rotated to provide the opportunity to obtain proficiency in most aspects of their career field associated with assigned weapon systems.

### **3.15. Unit Corrosion Control Program Requirements.**

3.15.1. Owning activities shall wash and clean their aircraft and support equipment.

3.15.2. ASM personnel will assist the owning activities in their corrosion prevention efforts by accomplishing scheduled corrosion inspections on aircraft, support and test equipment. Assigned 2A6X2 personnel or civilian equivalent, who are trained and qualified in corrosion prevention and detection may perform routine corrosion inspections during daily and periodic inspections of assigned AGE. However, upon request, ASM personnel (AFSC 2A7X3) will assist in assessing and/or evaluating AGE equipment for structural integrity and/or paint condition.

3.15.3. Aircraft Structural Maintenance personnel shall only perform aircraft inspection work cards specified for accomplishment by Aircraft Structural Maintenance in the -6 T.O. All maintenance personnel, regardless of AFSC, shall examine each part removed and inspect the inside of all exposed areas for corrosion. Avionics maintenance personnel shall inspect the electrical connectors of avionics line replaceable units (LRUs), inside equipment drawers, etc, for corrosion. The use of corrosion preventative compound (CPC) should be applied to all areas authorized by Technical Orders. All deficiencies noted during these inspections will be entered in the aircraft forms (AFTO Form 781A) and reported to the Aircraft Structural Maintenance Section for corrective action. When corrosion discrepancies are discovered that may affect aircraft structural integrity or safety of flight/operation or are beyond the using organization's capability to evaluate/repair, an aircraft structural maintenance specialist will be requested.

3.15.4. Maintenance personnel who remove/install aircraft panels and doors must ensure seals are serviceable and sealant is applied to panels and fasteners as specified in applicable aircraft technical orders.

3.15.5. Maintenance personnel shall report all corrosion deficiencies through the CAMS IAW 00-20 series technical orders. Accurate documentation of maintenance actions in support of the corrosion control program is essential to support future manning, equipment requirements, training, and parts/material procurement requirements.

3.15.6. Maintenance painting is defined as the application of coatings to aerospace equipment where the existing coating system is deteriorated or missing. Maintenance painting must be kept to a minimum and must comply with federal, state, and local environmental directives. Maintenance painting of aircraft will not be accomplished solely for cosmetics because of environmental and overall aircraft weight and balance concerns.

3.15.6.1. All touch-up painting will be accomplished using seam-to-seam, and will be masked at the edges. Where a seam is not reasonably accessible, a "simulated" seam may be created. Unmasked (maintenance painting) spray touch-up is authorized on camouflaged patterned paint schemes.

3.15.6.2. SEMPENS and paintbrush application methods are the preferred means of touching-up minor scratches and fastener heads. Prepackaged aerosol paint cans should not be used to touch up any type of defect on aircraft or ground equipment.

3.15.6.2.1. Locations that other wise authorize the use of prepackaged aerosol paint cans may use them on ground support equipment as long as they meet all mil-spec's requirements. The use of prepackaged aerosol paint cans is highly discouraged and all attempts to delete them from use must be made.

3.15.6.3. Atomized spray, paint brushing, and rolling are authorized methods for paint application. Units limited by local environmental restrictions should maximize the use of brushing and rolling techniques. Coating film thickness must be carefully monitored when using these methods.

### **3.16. Aerospace Vehicles Marking Requirements.**

3.16.1. General. Paint schemes/configurations and USAF standard markings will be applied IAW T.O. 1-1-8 and the applicable aircraft technical orders. **Attachment 1** contains specific locations/instructions for applying PACAF approved USAF non-standard markings to PACAF aircraft. Aircraft Structural Maintenance will assist units with technical issues concerning aircraft markings.

3.16.2. Structural Maintenance personnel are responsible for scoring aircraft paint systems and determining when to accomplish the scuff-sand and overcoat within the mid-life cycle. They will use a locally developed scoring system (or in accordance with technical data, if applicable) to determine priority for repaint. Repaint schedules will be established with consideration for PDM cycles, but coating condition, determined by Structural Maintenance technicians, will take precedence.

3.16.3. All aircraft markings and basic paint schemes will be maintained intact and legible. Overcoating will be accomplished when necessary to restore protection to bare or eroded areas, extend coating service life, or when aircraft appearance is unacceptable (excessively faded or stained, etc.). Command standardization of markings is of primary concern. Fighter units may scuff sand and overcoat their aircraft every 24-48 months if needed to maintain coating system integrity and aircraft appearance. This 24-48 month overcoat is the approximate mid-life expectancy of present coating systems qualified for aircraft application. Aircraft scheduled for PDM within 24 months will not receive full repaint. Units are required to adopt maintenance-painting techniques (i.e., spot painting and sectionalized painting as stated in T.O. 1-1-8) to maintain aircraft corrosion protection and appearance between

overcoats. Partial painting “sections” of the aircraft will help reduce the effects of mottling and mismatch. Units will rotate Commander’s aircraft to prevent excessive paint build-up from too frequent overcoating. Specific tail numbers will not be permanently retained as flagships. Rotation will be planned and forecasted by the wing corrosion control manager and wing schedulers. Flagships will be converted utilizing the most effective means through programmed depot maintenance returns and already planned overcoats. Do not repaint aircraft solely to convert to flagship paint configuration. Fully overcoated aircraft will be documented in CAMS and the individual aircraft AFTO Form 95 for tracking purposes. When large portions of aircraft are repainted (i.e. full wing, large portions of fuselage, flight controls, etc.), the AFTO Form 95 will be annotated with type of paint and exact location. Large aircraft units should rely on spot maintenance painting and sectionalized painting between depot cycles to maintain the coating system integrity. Any changes in paint scheme required by this supplement should be deferred to the next scheduled full repaint.

3.16.3.1. Aircraft paint data placards must not be permanently removed. When complete overcoats are accomplished, the paint data on the old placard will be annotated on the AFTO Form 95, Significant Historical Data. Field units that complete a scuff and overcoat will ensure a new placard is applied with new dates.

3.16.3.2. Paint cure times are critical to the effectiveness of the final coating. Technical Order cure times must be allowed to expire before painted components are placed into service.

3.16.3.3. External components (i.e. tanks, travel pods, pylons, etc.) shall be painted the same color and tone as the existing aircraft coating with no markings other than T.O. required. Flagships will not have specially marked tanks or travel pods.

3.16.3.4. In the event detachable aircraft equipment (weapons stores, pylons, external fuel tanks, launchers, etc.) is governed by specific technical data for paint requirements, the specific technical data will take precedence over general aircraft paint system requirements.

3.16.3.5. IFR door numbers will be black in color.

3.16.3.6. MAJCOM additional aircraft markings.

3.16.3.6.1. F-15C/D use contrasting gray markings (medium gray color # 36251 on dark areas, and dark gray color # 36176 on medium areas). Black additional markings will be # 37038.

3.16.3.6.2. F-16 use contrasting grays (gray background # 36270 will have gray markings # 36118, and gray background no. 36118 will have marking # 36270). Black additional markings will be # 37038.

3.16.3.6.3. All other aircraft additional markings will be black # 37038 for flat paint coatings and 10738 for gloss paint coatings.

3.16.3.7. Advance Protective Coating (APC) paint will be used as soon as it becomes available for each aircraft.

3.16.4. Methods of Application. The following are approved methods for applying aircraft markings:

3.16.4.1. Stenciling: refer to T.O. 1-1-8 and the applicable aircraft T.O. to determine the compatibility of stenciling paints, colors, and paint finishes.

3.16.4.2. Silk-screen Printing. The silk-screen printing process is an approved method for applying insignia to aircraft.

3.16.4.2.1. The silk-screen print method will not be used on aircraft surfaces that are contoured or have protruding screws, rivets, or bolts making use of rigid silk-screen frames impossible.

3.16.4.2.2. When used, silk-screen printing kits will be procured using local purchase procedures (AFMAN 23-110, Vol. 2, Part 2) with organization and maintenance (O&M) funds – vendors can be identified by local contracting offices.

3.16.5. Each Wing will send HQ PACAF/LGMFB high-resolution digital photographs displaying the entire left and right side of the NAF, Wing, OG, and flying squadron flagships. Additional, digital photographs displaying the entire left and right side of one non-flagship aircraft for each MDS is also required.

3.16.6. Tail Stripe.

3.16.6.1. Tail stripes are applied to identify aircraft operation squadrons. Each operations squadron tail stripe will be unique to that squadron. The use of the same tail stripe color by two or more squadrons within a wing is not permitted. The tail stripe will be applied at the upper portion of the vertical stabilizer, and must be in the form of a straight stripe. Lettering and/or logo are not authorized in the tail stripe. The width will be 6" on fighter/attack aircraft and as stated in [Attachment 1](#) for all other. On aircraft with multiple vertical stabilizers, the tail stripe will be a wrap-around style on both vertical stabilizers. The paint must be a flat-based coating; no semi-gloss or gloss paint is authorized. The squadrons tail stripe colors and patterns are listed in [Attachment 1](#).

3.16.7. Aircrew and Crew Chief Names.

3.16.7.1. Aircrew/crew chief personnel names will be applied as instructed in [Attachment 1](#). Names applied to PACAF aircraft may use either their given name, go-by name, or nickname. If go-by name or nickname is used written WG/CC approval of the name is required. A copy of the WG/CC approval letter must be provided to the Corrosion shop prior to the name being applied on the aircraft. An individual's first name can be either the given proper name (William, Robert, James, etc.) or the more familiar, shorter form of the proper name (Bill, Bob, Jim, etc.). The names will be 1-3/4 inch block style lettering for fighter/attack aircraft and helicopters. Heavy aircraft commander's and crew chief names will be 3-inch block style lettering. Painted or peel and stick lettering is acceptable; color will match the unit designator color. Designated commander's aircraft may have a different style of lettering but will maintain the designated lettering height. The title "Pilot", "WSO", DCC, or "ADCC" will not precede the aircrew and crew chief names. A ½ inch will separate DCC/ADCC name lines and Pilot/WSO name lines on fighter/attack aircraft. One inch will separate DCC/ADCC name lines on heavy aircraft. A background block, border, and/or design depicting the MDS (i.e. eagle head, falcon head, etc.) may be used to enclose aircrew/crew chief names. Descriptive, go-by names/nicknames/call signs like (Snake, Flash, Fish, etc.) will not be applied to PACAF aircraft.

3.16.8. Nose Art.

3.16.8.1. For the purpose of clarification, "nose art" will be the term used to identify specialized artwork applied to the forward area of the aircraft. Nose art is not authorized on PACAF aircraft unless directed by MAJCOM or higher authority.

3.16.8.2. "Lets Roll" nose art is authorized on one aircraft per Wing to include static aircraft.

### 3.16.9. Commanders' Aircraft Markings

3.16.9.1. Commanders' aircraft referred to in this supplement are those designated as Numbered Air Force (NAF), Wing, OG, and flying squadron commanders' aircraft. The NAF commander may select one wing within his or her respective command to have an aircraft specifically marked. It will be the only aircraft authorized so marked. Wing, OG, and flying squadron commanders are authorized only one aircraft each to be marked with commander-type markings. The following markings are authorized for use on commander aircraft:

3.16.9.2. The NAF, Wing, OG, and squadron lead aircraft will have the unit designator, numerals, and AF, FW, WG, AW, OG, FS, RQS, or AS (as applicable) highlighted with a white or contrasting gray  $\frac{1}{4}$ ,  $\frac{1}{2}$ , 1, or 1-1/2-inch shadow on both sides of the vertical stabilizer (F-15, A/OA-10 aircraft: left and right outboard vertical stabilizer). The numerals will be the size depicted for the aircraft serial number in T.O. 1-1-8, applicable weapons system T.O., or as directed in [Attachment 1](#). The AF, FW, WG, AW, OG, FS, RQS, or AS will be the same size as the numerals. It will be positioned below the unit designator in the space normally reserved for the aircraft serial number.

3.16.9.3. The aircraft serial number will be 4-inches in height, and configured as depicted in T.O. 1-1-8 and repositioned as follows:

3.16.9.4. F-16: centered on panel 4425 and 4426.

3.16.9.5. F-15: centered on the bottom edge of the vertical stabilizer main box.

3.16.9.6. H-60: aircraft serial number will remain in standard location. Squadron designator will conform to the contour of the tail rotor pylon and be centered between unit designator and aircraft serial number in 5-inch military block lettering (length forced to 68-percent).

3.16.9.7. C-130: serial number will be placed as shown in T.O. 1-1-8, applicable aircraft technical drawings, -23, and [Attachment 1](#) to this instruction.

3.16.9.8. All other PACAF aircraft: centered on the vertical stabilizer below special markings.

3.16.9.9. The NAF, Wing, and OG lead aircraft horizontal tail stripe on the vertical stabilizer will display all assigned squadron colors. The colors will be equally distributed with the assigned squadron color forward. The divisional slant of the colors will conform to the slant of the vertical stabilizer. In addition, insignia of all squadrons will be displayed. The additional insignia will be symmetrically positioned aft of the aircraft assigned squadron insignia. The NAF insignia will be located on the left side where the wing insignia is normally positioned. The wing insignia will be relocated aft of the NAF insignia.

### 3.16.10. Victory Markings:

3.16.10.1. Aircraft awarded a verified aerial victory are authorized to display a 6-inch green star with a 1/2 inch black border located just below and centered on the pilot's name block. The type of aircraft shot down shall be stenciled inside the star in 1/2 inch white lettering. For aircraft with more than one aerial victory, a star is authorized for each aircraft shot down.

3.16.10.2. Victory markings (i.e. bomb drops, bombing missions, radar kills, etc) may be temporarily applied at deployed locations with Deployment Commander's approval. These markings must be removed no later than 30 days upon returning to home station.

### 3.16.11. Waivers/Changes:

3.16.11.1. Requests for permanent waivers/changes to this supplement will be submitted through the OG/CC and MXG/CC recommended by the WG/CC and sent to the NAF/CC for review. If approved and recommended by the NAF/CC, the request will be forwarded to HQ PACAF/LG for review and coordination. PACAF/CC is the final approval authority for most permanent aircraft marking waivers/changes. If necessary, the waiver will be forwarded to HQ USAF for approval.

3.16.11.2. Waivers will be evaluated on a case-by-case basis.

3.16.11.3. Permanent waiver requests will include the present procedure/markings, description of the proposed change, justification for the proposed change, and two color photographs, one showing the present marking, and one digitally altered to show the requested change (color drawings may be substituted).

3.16.11.4. Approved waivers/changes will be implemented to the next PACAFI 21-105 re-write making the waiver obsolete.

3.16.11.5. Photographs of approved paint waivers will be sent to PACAF/LGMFB within 30 days after the completion of the first aircraft being changed.

### 3.16.12. Competition Aircraft.

3.16.12.1. Units participating in competitions such as William Tell, Gunsmoke, Saber Spirit, etc., will follow the guidelines established in the competition rules for aircraft appearance. Competitions should be considered "come as you are", and no waivers will be granted. "Come as you are" is defined as no special effort, painting, or additional markings applied to enhance or improve the overall appearance of the aircraft. This includes polishing of titanium and using commander-type markings.

3.16.12.2. When a unit wins one of the competitions listed above, the Wing Commander may authorize temporary marking additions to lead aircraft.

3.16.12.3. If used, markings are to be displayed until the next competition winners are announced.

### 3.16.13. Demo Aircraft.

3.16.13.1. Demo aircraft will not have specially designed markings and "Lets Roll" decals will not be applied specifically for demonstration purpose.

### 3.16.14. Unit Unique Silhouette.

3.16.14.1. A silhouette will be added to airframes as instructed in [Attachment 1](#). The silhouette will be standardized across the squadron and the designs must be coordinated through the OG, MXG, recommended by the WG/CC, and approved by the PACAF/CC. Silhouettes will not be used to personalize individual aircraft. Examples of unit unique silhouettes are: Kunsan's- Wolf Head, Eielson's- Combat Fox, and Kadena's- Shoguns.

### 3.16.15. Birds of Prey.

3.16.15.1. Factory applied "Bird of Prey" backbone markings may stay (i.e. F-16 Falcon); however, locally designed markings (i.e. Combat Fox, Mustang, etc) are not approved for the aircraft backbones and inside of the A-10 and F-15 aircraft verticals.

**3.17. Tone Down.**

- 3.17.1. Aerospace Ground Equipment (AGE). Polyurethane paint systems Mil-C-85285 high solid, low VOC paint, color number 24052, and is the approved top-coat paint systems for AGE. APC may be applied to AGE equipment.
- 3.17.2. Polyurethane paint will not be applied over lacquer or enamel coating.
- 3.17.3. Equipment will be prepared IAW TOs 1-1-8 and 35-1-3 before replacing lacquer or enamel coating with polyurethane coatings.
- 3.17.4. Minimum reflectorizing requirements will be IAW TO 35-1-3. Black subdued reflectorized tape will be used in lieu of white when left optional by TO 35-1-3.
- 3.17.5. Safety/danger/warning markings will be non-reflective red.
- 3.17.6. Caution markings will be non-reflective black.
- 3.17.7. Informational markings will be nonreflective black and be kept to a minimum.
- 3.17.8. Combat AGE Team (CAT) identification markings will not exceed a 2-inch by 6-inch area below two field numbers if the equipment area permits.
- 3.17.9. Fuel designation markings will be 1-inch nonreflective black letters on the filler cap or most conspicuous area adjacent to the filler cap.
- 3.17.10. Locally devised field numbers will be black.

**3.18. Corrosive Chemical Contamination Guidance.**

- 3.18.1. When a chemical leak or spill occurs onboard a PACAF aircraft, immediately notify the fire department and local hazardous material spill response team. The first maintenance person on the scene will immediately annotate the aircraft forms with type of chemical (if known) and contamination area.
  - 3.18.1.1. After neutralization, immediately notify the aircraft structural maintenance element to perform a comprehensive corrosion inspection of the affected area.
  - 3.18.1.2. Thoroughly clean aircraft and equipment contaminated with fire extinguishing materials as soon as possible after exposure in accordance with T.O. 1-1-691, Aircraft Weapons Systems Cleaning and Corrosion Control, Chapter 9.
- 3.18.2. Substances such as soft drinks, household cleaning detergents, and other commonly available chemicals must be properly cleaned immediately if spilled in or on aircraft metal components. Common sense and prudent cleaning/rinsing are critical elements of the corrosion prevention program.

## Chapter 4

### SURVIVAL EQUIPMENT PROGRAM

#### 4.1. Purpose of Survival Equipment (AFSC 2A7X4).

4.1.1. Survival Equipment supports aircraft maintenance, aircrew members, and parachutist sections, through the inspection, repair and packing of integrated personnel and drogue parachute systems, personnel and deceleration parachutes, flotation equipment, protective equipment, emergency evacuation systems and associated subsystems.

#### 4.2. HQ PACAF/LGM Responsibilities.

4.2.1. Manages the command Survival Equipment Program.

4.2.2. Designates a senior NCO to manage the program and perform the following responsibilities:

4.2.2.1. Supports the Air Force Survival Equipment Program by participating in systems continuous improvement process (CIP) working groups, MAJCOM executive working groups, Aircrew Protection working group, and UT&Ws.

4.2.2.2. Approves all intra-command Survival Equipment TDY manning assistance requests.

4.2.2.3. Develops and coordinates PACAF policy and procedures for Survival Equipment functions.

4.2.2.4. Coordinates all intra-command Survival temporary and permanent equipment transfers.

#### 4.3. Maintenance Group Commander Responsibilities.

4.3.1. Ensures personnel are qualified on assigned systems/weapon systems.

4.3.2. Determines whether Survival Equipment Section or Aircraft Electrical and Environmental Systems Section will inspect, refill, overhaul and replace CO2 cylinders.

#### 4.4. Fabrication Flight Chief Responsibilities.

4.4.1. Ensures funding is forecasted for various system training and worldwide/command survival equipment working groups.

4.4.2. Ensures Survival Equipment personnel are not assigned sewing projects or other local manufacture jobs that interfere with their primary survival equipment duties, including the sewing of cargo nets, Flags and other items that can be repaired through local resources.

#### 4.5. Survival Equipment Section Chief Responsibilities.

4.5.1. Maintains accurate copies of AFTO Form 392, Parachute Repack Inspection and Component Record, on ACES II Drogue Parachutes, and reference copies on ACES II Personnel Recovery Parachutes. NOTE: Computer software may be used in lieu of AFTO Form 392.

4.5.2. Maintains a two-person concept when servicing parachute recovery systems to include at least one certified parachute rigger and one IPI certified 7-level. The qualified parachute rigger will accomplish the complete inspection, repack, and repair of the parachute system. The IPI certified 7-level will

be present during the accomplishment of the IPI tasks associated with the parachute recovery system. Only the person(s) performing the inspection, repack, and repair will annotate the parachute logs and records. The IPI inspector will annotate the appropriate locally developed IPI checklist.

4.5.3. Establishes a 6-month recurring training program on infrequently maintained systems (i.e., ACES II drogue chute) to ensure personnel proficiency levels are maintained.

4.5.4. Ensures access is restricted in the parachute shop/section to personnel directly involved in the parachute packing operations. This is to prevent any tampering, damage and or contaminates getting onto the parachute assemblies.

4.5.5. Coordinates with Aircrew Life Support and Parachutist Sections to obtain a monthly schedule of equipment requiring inspections.

4.5.6. Ensures -21 equipment is not stored in the Survival Equipment Sections. Owning workcenters are responsible for storing and maintaining assigned equipment.

4.5.7. Ensures compliance with AFI 11-410, Personnel Parachute Operations. Survival Equipment Personnel will accomplish the complete inspection, repair and repack. Routine 30-day inspections along with the tracking and scheduling of equipment inspections are the responsibility of the owning workcenter.

4.5.8. Initially assembles and periodically repairs anti-exposure coveralls as required. Requisitions and replaces unserviceable components.

4.5.9. Documents and updates time changes, inspections and repacks on items identified or tacked in CAMS.

4.5.10. Ensures only authorized repairs and modifications are performed on flight clothing and equipment IAW applicable technical orders. NOTE: Flight clothing is classified as individual equipment; therefore, the owning individuals are responsible for sewing on rank and Velcro as required by AFI 36-2903.

4.5.11. Ensures hazardous materials are controlled in accordance with state and local laws.

4.5.12. Ensures the capability for storage of explosive items contained in aircrew life support equipment required during equipment maintenance, for which survival equipment is the performing workcenter, exists. Owning workcenters are responsible for ordering and forecasting their own munitions.

4.5.13. Ensures workcenter meets prescribed working environmental conditions in accordance with technical order guidelines (i.e., temperature and humidity levels).

4.5.14. Represents the workcenter on all activities that require the use of Survival Equipment Personnel expertise, i.e., TCTO scheduling, maintenance meetings, etc.

4.5.15. Performs final quality checks on all completed equipment using the routine inspection criteria in the applicable technical orders.

4.5.16. Ensures parts requisitioned, not to include any time change components, are ordered with a FAD code equivalent to the unit being supported.

4.5.17. Establishes special stock levels in supply to support the repair and replacement of individual equipment components.

4.5.18. Ensures all assigned personnel attend applicable aircraft egress training annually.

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Director of Logistics

**Attachment 1****MDS MARKING SPECIFICATIONS****A/OA-10**

**PACAF COMMAND INSIGNIA:** 10 inch black silhouette centered on outboard side of engine cowlings.

**WING INSIGNIA:** 10 inch black silhouette positioned on the left fuselage centered on panel F103.

**SQUADRON INSIGNIA:** 10-inch black silhouette positioned on the right fuselage centered on panel F42.

**PILOT and CREW CHIEF NAMES:** Pilot's name located on left fuselage, 6 inches above WL 100.00 begin block at FS 181.00.

Crew chiefs block symmetrically located on right fuselage.

**NOSE NUMBER:** Last three digits of the aircraft serial number on both sides of aircraft nose, 6 inches in height, black in color.

**TAIL STRIPE:** Entire vertical spar cap depicting squadron color.

**UNIT UNIQUE SILHOUETTE:** 30 X 16-inches contrasting black and gray silhouette; centered between the spar cap and position light and centered on outside of both vertical stabilizers (excluding rudder measurements).

**UNIT DESIGNATOR/SERIAL NUMBER:** Black in color centered between the verticals attachment point markings.

**All A/OA-10:** units operating in icing conditions are authorized to paint the inlet leading edges and inlet spinners dark gray (color #36118) to aid in ice build-up detection.

**UNIT UNIQUE MARKINGS:**

25TH FS (Osan).

Mustang silhouette.

Tail stripe will be yellow and green checkerboard.

355TH FS (Eielson).

Alaskan State Big Dipper and North Star silhouette.

355th Fighter Squadron tail stripe will be a black strip.

**C-130**

**AMERICAN FLAG:** 24 X 48 inches on both sides of the vertical stabilizer. Top of American flag is located 6" below the vertical stabilizer antenna; centered on vertical stabilizers (excluding rudder measurements).

**PACAF INSIGNIA:** 24-inch black silhouette centered on both sides of the vertical stabilizer. Top of insignia located 6" below the American Flag centered on vertical stabilizers (excluding rudder measurements).

**WING INSIGNIA:** 12-inch black silhouette on left fuselage, center 8 inches above first porthole window aft of crew entry door.

**SQUADRON INSIGNIA:** 12-inch black silhouette on right fuselage, symmetrically located same as wing insignia.

**AIRCRAFT COMMANDER AND CREW CHIEF NAMES:** Aircraft commander's name located 6 inches below and centered on left flight deck windows. Crew chief names centered 6 inches above the crew entry door. DCC name is positioned above the ADCC with a 1-inch space between the names.

**NOSE NUMBERS:** Black 6-inch block-style lettering on both sides of fuselage. Centered on fuselage station 116.0 and 6 inches below kick windows and will consist of last four digits of aircraft serial number.

**TAIL STRIPE:** 6-inch in width depicting squadron color, starting at vertical stabilizer station 259 and extend up 6 inches.

**UNIT UNIQUE SILHOUETTE:** 24 X 36-inches contrasting black and gray silhouette centered between the PACAF insignia and Unit designator.

**WING DESIGNATION:** Black 6-inch block-style lettering 4 inches below and centered on nose numbers.

**UNIT DESIGNATOR/SERIAL NUMBER:** Black in color and centered on both sides of the vertical stabilizer; bottom of serial number is located at vertical stabilizer station 36. Bottom of unit designator is located 6" above the serial number. Unit designator black 36-inch block-style lettering.

**ARMAMENT PLACARD:** A placard will be 16 X10-inches with a 1" border; top of placard will be located 15" below the top of CED door and 5" aft of door. The word ARMAMENT will be located  $\frac{3}{4}$  an inch below upper boarder.

**UNIT UNIQUE MARKINGS:**

517 AS (Elmendorf).

"Firebird" silhouette.

Tail stripe will be a white stripe.

36TH AS (Yokota).

"Samurai" silhouette.

Tail stripe will be a red stripe.

**E-3**

**AMERICAN FLAG:** 31.4 X 60-inch American flag on both sides of the vertical stabilizer, top leading edge located at FS 211.65 and BS 1550.

**PACAF INSIGNIA:** 24-inch black silhouette on left fuselage aft of crew entry door centered 10 inches above U.S. initials.

**WING INSIGNIA:** 24-inch black silhouette on right fuselage, symmetrically located same as PACAF insignia.

**SQUADRON INSIGNIA:** 24-inch black symmetrically located between last pane of pilot's window and pitot static tube, top of insignia locate at WL 197.5 with leading edge at BS 227.8.

**AIRCRAFT COMMANDER and CREW CHIEF NAMES:** Aircraft commander's name located on left fuselage at B.S. 191.5 and WL 233.5. Crew chief names are located on left side of the fuselage directly below the aircraft commander's name.

**NOSE NUMBERS:** 6-inch black block-style numbers centered on the left and right nose landing gear doors and will consist of the last four digits of the aircraft serial number.

**TAIL STRIPE:** 17-inch in width depicting squadron color, located 38 inches from top of vertical stabilizer horizontal stripe. Extend toward leading edge of stabilizer and end at the neoprene boot (do not paint boot).

**UNIT UNIQUE SILHOUETTE:** 24 X 36-inch contrasting black and white silhouette centered between the top of the unit designator and the bottom of the flag.

**UNIT DESIGNATOR/SERIAL NUMBER:** Black in color on both sides of the vertical stabilizer, configured as depicted in T.O. 1-1-8; position top leading edge of designator at FS 156.65 and BS 1535. 2.12.

**UNIT UNIQUE MARKINGS:**

961ST ACSS (Kadena).

"Shogun" silhouette.

Tail stripe will be an orange stripe.

962ND ACSS (Elmendorf).

"Eagle" silhouette.

Tail stripe will be of a green stripe.

**F-15**

**PACAF INSIGNIA:** 10-inch gray silhouette (black on F-15E), top of insignia on outboard sides of vertical stabilizers, WL 230, centered between the forward and aft torque box splices.

**WING INSIGNIA:** 10-inch gray silhouette (black on F-15E), Left fuselage, centered aft of door 46 (FS 447/WL 102.5).

**SQUADRON INSIGNIA:** 10-inch gray silhouette (black on F-15E), Right fuselage, symmetrically locate same as the wing insignia.

**PILOT and CREW CHIEF NAMES:** Pilot block located on left fuselage below canopy rail center on base of windscreen frame. Top of the name 25 inches above door 6 hinge. F-15E name block will have the pilots name on top with the WSO name below. Crew chief names are symmetrically located on right fuselage.

**NOSE NUMBERS:** Last four digits of aircraft serial number will be painted in gray (black on F-15E) 4" numerals vertically on both sides inside of the nose landing gear door.

**TAIL STRIPE:** Start directly below bullet splice depicting squadron color.

**UNIT UNIQUE SILHOUETTE:** 23 X 23-inches contrasting gray (black and gray on F-15E) silhouette on the outboard surfaces of both vertical stabilizers positioned between the unit designator and PACAF insignia.

**UNIT DESIGNATOR/SERIAL NUMBER:** Unit designator goes 6-inches above the serial number and centered on tail excluding the rudder.

**UNIT UNIQUE MARKINGS:**

12TH FS (Elmendorf)

"Eagle" silhouette

Tail stripe will be a gold stripe.

19TH FS (Elmendorf)

"Gamecock" silhouette

Tail stripe will be a blue stripe.

90TH FS (Elmendorf)

"Pair-O-Dice" silhouette

Tail stripe will be a red stripe.

44TH FS (Kadena)

"Shogun" silhouette

Tail stripe will be a blue stripe.

67TH FS (Kadena)

"Shogun" silhouette

Tail stripe will be a red stripe.

**F-16**

**PACAF INSIGNIA:** 10-inch contrasting gray silhouette, top of insignia 12 inches below tip of vertical stabilizer centered on main box.

**WING INSIGNIA:** 10-inch contrasting dark gray silhouette on left side of fuselage, top of insignia immediately aft of fuel vent port.

**SQUADRON INSIGNIA:** 10-inch contrasting dark gray silhouette, right side of fuselage symmetrically located same as wing insignia.

**PILOT and CREW CHIEF NAMES:** Pilot block located on left canopy frame, center between forward section of frame and transparency arch. Crew chiefs name block symmetrically located on right frame. ADCC crew chief's name will be positioned a ½ inch below the canopy rail.

**NOSE NUMBER:** Last three digits of the aircraft serial number on centered below teardrop EWWS antenna on each side of aircraft nose, 4 inches in height, dark gray in color (36118).

**TAIL STRIPE:** Top 6-inches of vertical stabilizer depicting squadron color starting at forward tip of vertical stabilizer.

**UNIT UNIQUE SILHOUETTES:** 30 X 16-inch dark and light gray silhouette centered between PACAF Insignia and unit designator on both sides of the vertical stabilizer.

**UNIT DESIGNATOR/SERIAL NUMBER:** Both sides of the vertical stabilizer, located with bottom of numbers at WL 158.0 and horizontally with leading edge of first letters of FS 482.07. All F-16 units operating in icing conditions are authorized to paint a flat black (color code #37038) ring around the inside lip of the engine inlet duct to aid in ice build-up detection.

**UNIT UNIQUE MARKINGS:**

18TH FS (Eielson)

"Combat Fox" silhouette

Tail stripe will be a blue stripe.

36TH FS (Osan)

"Mustang" silhouette

Tail stripe will be a red and black checkerboard

35TH FS (Kunsan)

"Wolf Head" silhouette

Tail stripe will be a blue stripe.

80TH FS (Kunsan)

"Wolf Head" silhouette

Tail strip will be a gold stripe.

13TH FS (Misawa)

"Panther" silhouette

Tail stripe will be a red stripe.

14TH FS (Misawa)

"Samurai" silhouette

Tail stripe will be a gold stripe.

### **HH-60**

**USAF:** 6-inch black block-style lettering centered on station 520 of tail cone.

**PACAF INSIGNIA:** 10-inch black silhouette centered on station 300, left side forward cowling, and main rotor pylon.

**WING INSIGNIA:** 10-inch black silhouette centered on station 200, right side forward cowling, main rotor pylon.

**UNIT DESIGNATOR:** 10-inch military block lettering offset to conform to contour of tail rotor pylon. Will be centered on bottom of letters 10 inches above the aircraft serial number. **RESCUE:** 6-inch black block-style lettering centered on station 600 of tail cone.

**PILOT and CREW CHIEF NAMES:** Pilot name will be centered on right door, 2.5 inches below the window. Crew chief name will be on the right cargo door, 3.1 inches below and centered on the forward window. Assistant crew chief will be on the left cargo door 3.1 inches below and centered on the forward door.

**KC-135**

**AMERICAN FLAG:** 40 X 23-inch American flag centered on the vertical stabilizer with the bottom of the flag 79-inches above the top of the UHF antenna.

**PACAF INSIGNIA:** 24-inch black silhouette on both sides of the vertical stabilizer, 23-inches below the flag and centered on vertical stabilizers (excluding rudder measurements).

**WING INSIGNIA:** 24-inch black silhouette on left fuselage center on station 360 and WL214.

**SQUADRON INSIGNIA:** 24-inch black silhouette on right side of fuselage center on station 360 and WL 214 symmetrical with wing insignia.

**AIRCRAFT COMMANDER and CREW CHIEF NAMES:** Aircraft commanders name block located on left fuselage 5-1/2 inches from bottom edge of windscreen. Crew chiefs names center on station 360 and 24 inches below bottom of wing insignia.

**NOSE NUMBERS:** 6-inch black block-style numbers consist of the last four digits of the aircraft serial number. Left side numbers locate starting at station 277.0 and WL 200.0. Right side numbers locate starting at station 203.6 and WL 200.0.

**TAIL STRIPE:** 24-inch horizontal wrap-around stripe depicting squadron color top of stripe is at WL 557.1.

**UNIT UNIQUE SILHOUETTE:** 24 X 36-inches centered between the PACAF insignia and unit designation on outside of vertical stabilizer (excluding rudder measurements).

**UNIT DESIGNATOR/SERIAL NUMBER:** Black in color located on both sides of vertical stabilizer. Position bottom of the designator 40-inches above the bottom of vertical stabilizer. RUDDERVATOR MARKINGS: Black 8-inch block style letters depicting assigned squadron.

**UNIT UNIQUE MARKINGS:**

909TH ARS (Kadena)

"Samurai" silhouette

Tail stripe will consist of a white stripe with one-inch orange and tiger strip stripes on top and bottom.